Claims

1. A method of localizing a failure along a path in a transmission network, said method comprising the steps of:

- creating a bi-directional tandem connectionon at least a segment of said path;
- monitoring said tandem connection at intermediate nodes along said segment;
- responsive to detecting a failure at a network element along said path segment, creating a temporary tandem connection source and sending a valid tandem connection signal comprising a failed link identifier of the adjacent link;
- at the network elements terminating said tandem connection, generating an alarm report comprising the failure location as indicated by the failed link identifier of the received tandem connection signal.

2. A method according to claim 1, wherein temporary tandem connection sources are created in upstream and in downstream direction.

3. A method according to claim 1, wherein said step of generating an alarm report is performed only after expiration of a hold-off timer which is greater than the detection time for the failure.

4. A method according to claim 1, further comprising the step of excluding the failed link as indicated by the failed link identifier from local routing databases at the intermediate network elements.

5. A method according to claim 1, further comprising the steps of updating a local routing database responsive to receiving a tandem connection signal with failed link identifier or responsive to detecting a failure condition.

6. A method according to claim 3, further comprising the steps of determining a bypass connection for re-routing the failed path signal from said updated local routing database and initiating connection set-up of said bypass connection.

7. A method according to claim 1, comprising the steps of:

- responsive to detecting an alarm signal at a network element along said path segment, creating a temporary tandem connection source and overwriting said tandem connection alarm with a valid tandem connection signal, said signal comprising a failed link identifier of the adjacent link and
- removing said temporary tandem connection source as soon as a valid signal is received again.

8. A network element for a transmission network, comprising at least one input interface and at least one output interface, said input interface comprising a tandem connection monitor function adapted to monitor a

tandem connection transported on a received transmission signal and responsive to detecting a failure condition to initiate activation of a temporary tandem connection source function for inserting a valid tandem connection signal comprising a failed link identifier of the adjacent link.

9. A network element for a transmission network, comprising at least one input interface, said input interface comprising a tandem connection monitor function adapted to monitor a tandem connection transported on a received transmission signal and responsive to detecting a failure condition to initiate activation of a temporary tandem connection source (function for inserting a valid tandem connection signal comprising a failed link identifierof the adjacent link, said network element further comprising a tandem connection sink function for terminating said received tandem connection, said tandem connection sink function being adapted to initiate, responsive to detecting a failed link identifier in the received tandem connection, generation of an alarm report comprising the failure location as indicated by the link identifier of the terminated tandem connection signal.

10. A network element according to claim 6 or 7, comprising a local routing database, wherein said network element is adapted to update said local routing database responsive to receiving a tandem connection signal with failed link identifier or responsive to detecting a failure condition, by excluding the failed link from the local routing database.

11. A method of updating routing information in a label switched transmission network, said network comprising a number of physically interconnected network elements each comprising a local routing database, a transmission path being established along at least some of said network elements; said method comprising the steps of:

- creating a bi-directional tandem connection along at least a segment of said path;
- monitoring said tandem connection at the intermediate nodes;
- responsive to detecting a failure condition at a node along said path segment, creating a temporary tandem connection source and sending a valid tandem connection signal comprising a failed link identifier of the adjacent link;
- updating the routing information of the network elements along the path segment by excluding the failed link as indicated by the failed link identifier from their local routing databases.